



SEQUENCE LISTING

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Cress, Dean Ervin

<120> Ecdysone Receptor-Based Inducible Gene Expression System

<130> A01020B

<140> US 09/965,703

<141> 2001-09-26

<150> US 60/191,355

<151> 2000-03-22

<150> US 60/269,799

<151> 2001-02-20

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<170> PatentIn version 3.3

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 <213> Choristoneura fumiferana

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Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu Thr Cys Glu Gly Cys
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Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn Ala Val Tyr Ile Cys
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Lys Phe Gly His Ala Cys Glu Met Asp Met Tyr Met Arg Arg Lys Cys
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Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly Met Arg Pro Glu
 65 70 75 80

Cys Val Val Pro Glu Thr Gln Cys Ala Met Lys Arg Lys Glu Lys Lys
 85 90 95

Ala Gln Lys Glu Lys Asp Lys Leu Pro Val Ser Thr Thr Thr Val Asp
 100 105 110

Asp His Met Pro Pro Ile Met Gln Cys Glu Pro Pro Pro Pro Glu Ala
 115 120 125

Ala Arg Ile His Glu Val Val Pro Arg Phe Leu Ser Asp Lys Leu Leu
 130 135 140

Glu Thr Asn Arg Gln Lys Asn Ile Pro Gln Leu Thr Ala Asn Gln Gln
 145 150 155 160

Phe Leu Ile Ala Arg Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro
 165 170 175
 Ser Asp Glu Asp Leu Lys Arg Ile Thr Gln Thr Trp Gln Gln Ala Asp
 180 185 190
 Asp Glu Asn Glu Glu Ser Asp Thr Pro Phe Arg Gln Ile Thr Glu Met
 195 200 205
 Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly Leu Pro
 210 215 220
 Gly Phe Ala Lys Ile Ser Gln Pro Asp Gln Ile Thr Leu Leu Lys Ala
 225 230 235 240
 Cys Ser Ser Glu Val Met Met Leu Arg Val Ala Arg Arg Tyr Asp Ala
 245 250 255
 Ala Ser Asp Ser Val Leu Phe Ala Asn Asn Gln Ala Tyr Thr Arg Asp
 260 265 270
 Asn Tyr Arg Lys Ala Gly Met Ala Tyr Val Ile Glu Asp Leu Leu His
 275 280 285
 Phe Cys Arg Cys Met Tyr Ser Met Ala Leu Asp Asn Ile His Tyr Ala
 290 295 300
 Leu Leu Thr Ala Val Val Ile Phe Ser Asp Arg Pro Gly Leu Glu Gln
 305 310 315 320
 Pro Gln Leu Val Glu Glu Ile Gln Arg Tyr Tyr Leu Asn Thr Leu Arg
 325 330 335
 Ile Tyr Ile Leu Asn Gln Leu Ser Gly Ser Ala Arg Ser Ser Val Ile
 340 345 350
 Tyr Gly Lys Ile Leu Ser Ile Leu Ser Glu Leu Arg Thr Leu Gly Met
 355 360 365
 Gln Asn Ser Asn Met Cys Ile Ser Leu Lys Leu Lys Asn Arg Lys Leu
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 Gln Pro Pro Pro Ile Leu Glu Ser Pro Thr Asn Leu
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Lys Phe Gly His Ala Cys Glu Met Asp Met Tyr Met Arg Arg Lys Cys
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Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly Met Arg Pro Glu
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Cys Val Val Pro Glu Thr Gln Cys Ala Met Lys Arg Lys Glu Lys Lys
85 90 95

Ala Gln Lys Glu Lys Asp Lys Leu Pro Val Ser Thr Thr Thr Val Asp
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Asp His Met Pro Pro Ile Met Gln Cys Glu Pro Pro Pro Pro Glu Ala
115 120 125

Ala Arg Ile His Glu Val Val Pro Arg Phe Leu Ser Asp Lys Leu Leu
130 135 140

Glu Thr Asn Arg Gln Lys Asn Ile Pro Gln Leu Thr Ala Asn Gln Gln
145 150 155 160

Phe Leu Ile Ala Arg Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro
165 170 175

Ser Asp Glu Asp Leu Lys Arg Ile Thr Gln Thr Trp Gln Gln Ala Asp
180 185 190

Asp Glu Asn Glu Glu Ser Asp Thr Pro Phe Arg Gln Ile Thr Glu Met
195 200 205

Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly Leu Pro
210 215 220

Gly Phe Ala Lys Ile Ser Gln Pro Asp Gln Ile Thr Leu Leu Lys Ala
Page 11

225		230		235		240
Cys Ser Ser Glu Val	Met Met Leu Arg Val	Ala Arg Arg Tyr Asp	Ala			
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Ala Ser Asp Ser Val	Leu Phe Ala Asn Asn Gln Ala Tyr Thr	Arg Asp				
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Asn Tyr Arg Lys Ala Gly Met	Ala Tyr Val Ile Glu Asp	Leu Leu His				
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Phe Cys Arg Cys Met Tyr	Ser Met Ala Leu Asp Asn	Ile His Tyr Ala				
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Pro Gln Leu Val	Glu Glu Ile Gln Arg Tyr Tyr Leu Asn Thr	Leu Arg				
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Ile Tyr Ile	Leu Asn Gln Leu Ser Gly Ser Ala Arg Ser	Ser Val Ile				
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Tyr Gly Lys Ile Leu Ser Ile	Leu Ser Glu Leu Arg Thr	Leu Gly Met				
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Gln Asn Ser Asn Met Cys	Ile Ser Leu Lys Leu Lys Asn Arg Lys Leu					
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Leu Leu Glu Thr Asn Arg Gln Lys Asn Ile Pro Gln Leu Thr Ala Asn
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Gln Gln Phe Leu Ile Ala Arg Leu Ile Trp Tyr Gln Asp Gly Tyr Glu
85 90 95

Gln Pro Ser Asp Glu Asp Leu Lys Arg Ile Thr Gln Thr Trp Gln Gln
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Ala Asp Asp Glu Asn Glu Glu Ser Asp Thr Pro Phe Arg Gln Ile Thr
115 120 125

Glu Met Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly
130 135 140

Leu Pro Gly Phe Ala Lys Ile Ser Gln Pro Asp Gln Ile Thr Leu Leu
145 150 155 160

Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Val Ala Arg Arg Tyr
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Asp Ala Ala Ser Asp Ser Val Leu Phe Ala Asn Asn Gln Ala Tyr Thr
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Arg Asp Asn Tyr Arg Lys Ala Gly Met Ala Tyr Val Ile Glu Asp Leu
195 200 205

Leu His Phe Cys Arg Cys Met Tyr Ser Met Ala Leu Asp Asn Ile His
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Tyr Ala Leu Leu Thr Ala Val Val Ile Phe Ser Asp Arg Pro Gly Leu
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Glu Gln Pro Gln Leu Val Glu Glu Ile Gln Arg Tyr Tyr Leu Asn Thr
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Leu Arg Ile Tyr Ile Leu Asn Gln Leu Ser Gly Ser Ala Arg Ser Ser
260 265 270

Val Ile Tyr Gly Lys Ile Leu Ser Ile Leu Ser Glu Leu Arg Thr Leu
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Gly Met Gln Asn Ser Asn Met Cys Ile Ser Leu Lys Leu Lys Asn Arg
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His Thr Gln Pro Pro Ile Leu Glu Ser Pro Thr Asn Leu
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<211> 244

<212> PRT

<213> Choristoneura fumiferana

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Val Glu Phe Ala Lys Gly Leu Pro Gly Phe Ala Lys Ile Ser Gln Pro
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Asp Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu
65 70 75 80

Arg Val Ala Arg Arg Tyr Asp Ala Ala Ser Asp Ser Val Leu Phe Ala
85 90 95

Asn Asn Gln Ala Tyr Thr Arg Asp Asn Tyr Arg Lys Ala Gly Met Ala
100 105 110

Tyr Val Ile Glu Asp Leu Leu His Phe Cys Arg Cys Met Tyr Ser Met
115 120 125

Ala Leu Asp Asn Ile His Tyr Ala Leu Leu Thr Ala Val Val Ile Phe
130 135 140

Ser Asp Arg Pro Gly Leu Glu Gln Pro Gln Leu Val Glu Glu Ile Gln
145 150 155 160

Arg Tyr Tyr Leu Asn Thr Leu Arg Ile Tyr Ile Leu Asn Gln Leu Ser
165 170 175

Gly Ser Ala Arg Ser Ser Val Ile Tyr Gly Lys Ile Leu Ser Ile Leu
180 185 190

Ser Glu Leu Arg Thr Leu Gly Met Gln Asn Ser Asn Met Cys Ile Ser
195 200 205

Leu Lys Leu Lys Asn Arg Lys Leu Pro Pro Phe Leu Glu Glu Ile Trp
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Asp Val Ala Asp Met Ser His Thr Gln Pro Pro Pro Ile Leu Glu Ser
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Pro Thr Asn Leu

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<213> Choristoneura fumiferana

<400> 15

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Val Asp Asp His Met Pro Pro Ile Met Gln Cys Glu Pro Pro Pro Pro
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Glu Ala Ala Arg Ile His Glu Val Val Pro Arg Phe Leu Ser Asp Lys
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Leu Leu Glu Thr Asn Arg Gln Lys Asn Ile Pro Gln Leu Thr Ala Asn
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Gln Gln Phe Leu Ile Ala Arg Leu Ile Trp Tyr Gln Asp Gly Tyr Glu
85 90 95

Gln Pro Ser Asp Glu Asp Leu Lys Arg Ile Thr Gln Thr Trp Gln Gln
100 105 110

Ala Asp Asp Glu Asn Glu Glu Ser Asp Thr Pro Phe Arg Gln Ile Thr
115 120 125

Glu Met Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly
130 135 140

Leu Pro Gly Phe Ala Lys Ile Ser Gln Pro Asp Gln Ile Thr Leu Leu
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Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Val Ala Arg Arg Tyr
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Arg Asp Asn Tyr Arg Lys Ala Gly Met Ala Tyr Val Ile Glu Asp Leu
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Leu His Phe Cys Arg Cys Met Tyr Ser Met Ala Leu Asp Asn Ile His
210 215 220

Tyr Ala Leu Leu Thr Ala Val Val Ile Phe Ser Asp Arg Pro Gly Leu
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Glu Gln Pro Gln Leu Val Glu Glu Ile Gln Arg Tyr Tyr Leu Asn Thr
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Leu Arg Ile Tyr Ile Leu Asn Gln Leu Ser Gly Ser Ala Arg Ser Ser
260 265 270

Val Ile Tyr Gly Lys Ile Leu Ser Ile Leu Ser Glu Leu Arg Thr Leu
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<212> PRT
<213> Drosophila melanogaster

<400> 16

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Gly Phe Phe Arg Arg Ser Val Thr Lys Ser Ala Val Tyr Cys Cys Lys
35 40 45

Phe Gly Arg Ala Cys Glu Met Asp Met Tyr Met Arg Arg Lys Cys Gln
50 55 60

Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly Met Arg Pro Glu Cys
Page 16

65					70					75				80	
Val	Val	Pro	Glu	Asn 85	Gln	Cys	Ala	Met	Lys 90	Arg	Arg	Glu	Lys	Lys 95	Ala
Gln	Lys	Glu	Lys 100	Asp	Lys	Met	Thr	Thr 105	Ser	Pro	Ser	Ser	Gln 110	His	Gly
Gly	Asn	Gly 115	Ser	Leu	Ala	Ser	Gly 120	Gly	Gly	Gln	Asp	Phe 125	Val	Lys	Lys
Glu	Ile 130	Leu	Asp	Leu	Met	Thr 135	Cys	Glu	Pro	Pro	Gln 140	His	Ala	Thr	Ile
Pro 145	Leu	Leu	Pro	Asp	Glu 150	Ile	Leu	Ala	Lys	Cys 155	Gln	Ala	Arg	Asn	Ile 160
Pro	Ser	Leu	Thr	Tyr 165	Asn	Gln	Leu	Ala	Val 170	Ile	Tyr	Lys	Leu	Ile 175	Trp
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Pro	Gly	Leu	Glu	Lys	Ala	Gln	Leu	Val	Glu	Ala	Ile	Gln	Ser	Tyr	Tyr

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 Ile Asp Thr Leu Arg Ile Tyr Ile Leu Asn Arg His Cys Gly Asp Ser
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 Met Ser Leu Val Phe Tyr Ala Lys Leu Leu Ser Ile Leu Thr Glu Leu
 355 360 365
 Arg Thr Leu Gly Asn Gln Asn Ala Glu Met Cys Phe Ser Leu Lys Leu
 370 375 380
 Lys Asn Arg Lys Leu Pro Lys Phe Leu Glu Glu Ile Trp Asp Val His
 385 390 395 400
 Ala Ile Pro Pro Ser Val Gln Ser His Leu Gln Ile Thr Gln Glu Glu
 405 410 415
 Asn Glu Arg Leu Glu Arg Ala Glu Arg Met Arg Ala Ser Val Gly Gly
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 Ala Ile Thr Ala Gly Ile Asp Cys Asp Ser Ala Ser Thr Ser Ala Ala
 435 440 445
 Ala Ala Ala Ala Gln His Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro
 450 455 460
 Ser Ser Leu Thr Gln Asn Asp Ser Gln His Gln Thr Gln Pro Gln Leu
 465 470 475 480
 Gln Pro Gln Leu Pro Pro Gln Leu Gln Gly Gln Leu Gln Pro Gln Leu
 485 490 495
 Gln Pro Gln Leu Gln Thr Gln Leu Gln Pro Gln Ile Gln Pro Gln Pro
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 Gln Leu Leu Pro Val Ser Ala Pro Val Pro Ala Ser Val Thr Ala Pro
 515 520 525
 Gly Ser Leu Ser Ala Val Ser Thr Ser Ser Glu Tyr Met Gly Gly Ser
 530 535 540
 Ala Ala Ile Gly Pro Ile Thr Pro Ala Thr Thr Ser Ser Ile Thr Ala
 545 550 555 560
 Ala Val Thr Ala Ser Ser Thr Thr Ser Ala Val Pro Met Gly Asn Gly
 565 570 575
 Val Gly Val Gly Val Gly Val Gly Gly Asn Val Ser Met Tyr Ala Asn

580

585

590

Ala Gln Thr Ala Met Ala Leu Met Gly Val Ala Leu His Ser His Gln
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Glu Gln Leu Ile Gly Gly Val Ala Val Lys Ser Glu His Ser Thr Thr
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<213> *Drosophila melanogaster*

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Gly Met Arg Pro Glu Cys Val Val Pro Glu Asn Gln Cys Ala Met Lys
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Arg Arg Glu Lys Lys Ala Gln Lys Glu Lys Asp Lys Met Thr Thr Ser
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Pro Ser Ser Gln His Gly Gly Asn Gly Ser Leu Ala Ser Gly Gly Gly
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Gln Asp Phe Val Lys Lys Glu Ile Leu Asp Leu Met Thr Cys Glu Pro
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Pro Gln His Ala Thr Ile Pro Leu Leu Pro Asp Glu Ile Leu Ala Lys
100 105 110

Cys Gln Ala Arg Asn Ile Pro Ser Leu Thr Tyr Asn Gln Leu Ala Val
115 120 125

Ile Tyr Lys Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu
130 135 140

Glu Asp Leu Arg Arg Ile Met Ser Gln Pro Asp Glu Asn Glu Ser Gln
145 150 155 160

Thr Asp Val Ser Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val
165 170 175

Gln Leu Ile Val Glu Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile
180 185 190

Pro Gln Glu Asp Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val
195 200 205

Met Met Leu Arg Met Ala Arg Arg Tyr Asp His Ser Ser Asp Ser Ile
210 215 220

Phe Phe Ala Asn Asn Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala
225 230 235 240

Gly Met Ala Asp Asn Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met
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Phe Ser Met Lys Val Asp Asn Val Glu Tyr Ala Leu Leu Thr Ala Ile
260 265 270

Val Ile Phe Ser Asp Arg Pro Gly Leu Glu Lys Ala Gln Leu Val Glu
275 280 285

Ala Ile Gln Ser Tyr Tyr Ile Asp Thr Leu Arg Ile Tyr Ile Leu Asn
290 295 300

Arg His Cys Gly Asp Ser Met Ser Leu Val Phe Tyr Ala Lys Leu Leu
305 310 315 320

Ser Ile Leu Thr Glu Leu Arg Thr Leu Gly Asn Gln Asn Ala Glu Met
325 330 335

Cys Phe Ser Leu Lys Leu Lys Asn Arg Lys Leu Pro Lys Phe Leu Glu
340 345 350

Glu Ile Trp Asp Val His Ala Ile Pro Pro Ser Val Gln Ser His Leu
355 360 365

Gln Ile Thr Gln Glu Glu Asn Glu Arg Leu Glu Arg Ala Glu Arg Met
370 375 380

Arg Ala Ser Val Gly Gly Ala Ile Thr Ala Gly Ile Asp Cys Asp Ser
385 390 395 400

Ala Ser Thr Ser Ala Ala Ala Ala Ala Ala Gln His Gln Pro Gln Pro
405 410 415

Gln Pro Gln Pro Gln Pro Ser Ser Leu Thr Gln Asn Asp Ser Gln His
420 425 430

Gln Thr Gln Pro Gln Leu Gln Pro Gln Leu Pro Pro Gln Leu Gln Gly
435 440 445

Gln Leu Gln Pro Gln Leu Gln Pro Gln Leu Gln Thr Gln Leu Gln Pro
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Gln Ile Gln Pro Gln Pro Gln Leu Leu Pro Val Ser Ala Pro Val Pro
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Ala Ser Val Thr Ala Pro Gly Ser Leu Ser Ala Val Ser Thr Ser Ser
485 490 495

Glu Tyr Met Gly Gly Ser Ala Ala Ile Gly Pro Ile Thr Pro Ala Thr
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Thr Ser Ser Ile Thr Ala Ala Val Thr Ala Ser Ser Thr Thr Ser Ala
515 520 525

Val Pro Met Gly Asn Gly Val Gly Val Gly Val Gly Val Gly Gly Asn
530 535 540

Val Ser Met Tyr Ala Asn Ala Gln Thr Ala Met Ala Leu Met Gly Val
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Ser Glu His Ser Thr Thr Ala
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<213> *Drosophila melanogaster*

<400> 18

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Ser Gln His Gly Gly Asn Gly Ser Leu Ala Ser Gly Gly Gly Gln Asp
35 40 45

Phe Val Lys Lys Glu Ile Leu Asp Leu Met Thr Cys Glu Pro Pro Gln
50 55 60

His Ala Thr Ile Pro Leu Leu Pro Asp Glu Ile Leu Ala Lys Cys Gln
 65 70 75 80
 Ala Arg Asn Ile Pro Ser Leu Thr Tyr Asn Gln Leu Ala Val Ile Tyr
 85 90 95
 Lys Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp
 100 105 110
 Leu Arg Arg Ile Met Ser Gln Pro Asp Glu Asn Glu Ser Gln Thr Asp
 115 120 125
 Val Ser Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu
 130 135 140
 Ile Val Glu Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile Pro Gln
 145 150 155 160
 Glu Asp Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met
 165 170 175
 Leu Arg Met Ala Arg Arg Tyr Asp His Ser Ser Asp Ser Ile Phe Phe
 180 185 190
 Ala Asn Asn Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met
 195 200 205
 Ala Asp Asn Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Phe Ser
 210 215 220
 Met Lys Val Asp Asn Val Glu Tyr Ala Leu Leu Thr Ala Ile Val Ile
 225 230 235 240
 Phe Ser Asp Arg Pro Gly Leu Glu Lys Ala Gln Leu Val Glu Ala Ile
 245 250 255
 Gln Ser Tyr Tyr Ile Asp Thr Leu Arg Ile Tyr Ile Leu Asn Arg His
 260 265 270
 Cys Gly Asp Ser Met Ser Leu Val Phe Tyr Ala Lys Leu Leu Ser Ile
 275 280 285
 Leu Thr Glu Leu Arg Thr Leu Gly Asn Gln Asn Ala Glu Met Cys Phe
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 Ser Leu Lys Leu Lys Asn Arg Lys Leu Pro Lys Phe Leu Glu Glu Ile
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Trp Asp Val His Ala Ile Pro Pro Ser Val Gln Ser His Leu Gln Ile
325 330 335

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340 345 350

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Thr Ser Ala Ala Ala Ala Ala Ala Gln His Gln Pro Gln Pro Gln Pro
370 375 380

Gln Pro Gln Pro Ser Ser Leu Thr Gln Asn Asp Ser Gln His Gln Thr
385 390 395 400

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405 410 415

Gln Pro Gln Leu Gln Pro Gln Leu Gln Thr Gln Leu Gln Pro Gln Ile
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Gln Pro Gln Pro Gln Leu Leu Pro Val Ser Ala Pro Val Pro Ala Ser
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Val Thr Ala Pro Gly Ser Leu Ser Ala Val Ser Thr Ser Ser Glu Tyr
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Met Gly Gly Ser Ala Ala Ile Gly Pro Ile Thr Pro Ala Thr Thr Ser
465 470 475 480

Ser Ile Thr Ala Ala Val Thr Ala Ser Ser Thr Thr Ser Ala Val Pro
485 490 495

Met Gly Asn Gly Val Gly Val Gly Val Gly Val Gly Gly Asn Val Ser
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Met Tyr Ala Asn Ala Gln Thr Ala Met Ala Leu Met Gly Val Ala Leu
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His Ser Thr Thr Ala
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<213> Drosophila melanogaster

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Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln Ile Thr Leu Leu Lys
50 55 60

Ala Cys Ser Ser Glu Val Met Met Leu Arg Met Ala Arg Arg Tyr Asp
65 70 75 80

His Ser Ser Asp Ser Ile Phe Phe Ala Asn Asn Arg Ser Tyr Thr Arg
85 90 95

Asp Ser Tyr Lys Met Ala Gly Met Ala Asp Asn Ile Glu Asp Leu Leu
100 105 110

His Phe Cys Arg Gln Met Phe Ser Met Lys Val Asp Asn Val Glu Tyr
115 120 125

Ala Leu Leu Thr Ala Ile Val Ile Phe Ser Asp Arg Pro Gly Leu Glu
130 135 140

Lys Ala Gln Leu Val Glu Ala Ile Gln Ser Tyr Tyr Ile Asp Thr Leu
145 150 155 160

Arg Ile Tyr Ile Leu Asn Arg His Cys Gly Asp Ser Met Ser Leu Val
165 170 175

Phe Tyr Ala Lys Leu Leu Ser Ile Leu Thr Glu Leu Arg Thr Leu Gly
180 185 190

Asn Gln Asn Ala Glu Met Cys Phe Ser Leu Lys Leu Lys Asn Arg Lys
195 200 205

Leu Pro Lys Phe Leu Glu Glu Ile Trp Asp Val His Ala Ile Pro Pro
210 215 220

Ser Val Gln Ser His Leu Gln Ile Thr Gln Glu Glu Asn Glu Arg Leu
225 230 235 240

Glu Arg Ala Glu Arg Met Arg Ala Ser Val Gly Gly Ala Ile Thr Ala
245 250 255

Gly Ile Asp Cys Asp Ser Ala Ser Thr Ser Ala Ala Ala Ala Ala Ala
260 265 270

Gln His Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Ser Ser Leu Thr
275 280 285

Gln Asn Asp Ser Gln His Gln Thr Gln Pro Gln Leu Gln Pro Gln Leu
290 295 300

Pro Pro Gln Leu Gln Gly Gln Leu Gln Pro Gln Leu Gln Pro Gln Leu
305 310 315 320

Gln Thr Gln Leu Gln Pro Gln Ile Gln Pro Gln Pro Gln Leu Leu Pro
325 330 335

Val Ser Ala Pro Val Pro Ala Ser Val Thr Ala Pro Gly Ser Leu Ser
340 345 350

Ala Val Ser Thr Ser Ser Glu Tyr Met Gly Gly Ser Ala Ala Ile Gly
355 360 365

Pro Ile Thr Pro Ala Thr Thr Ser Ser Ile Thr Ala Ala Val Thr Ala
370 375 380

Ser Ser Thr Thr Ser Ala Val Pro Met Gly Asn Gly Val Gly Val Gly
385 390 395 400

Val Gly Val Gly Gly Asn Val Ser Met Tyr Ala Asn Ala Gln Thr Ala
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Met Ala Leu Met Gly Val Ala Leu His Ser His Gln Glu Gln Leu Ile
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Gly Gly Val Ala Val Lys Ser Glu His Ser Thr Thr Ala
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<213> Drosophila melanogaster

<400> 20

Arg Pro Glu Cys Val Val Pro Glu Asn Gln Cys Ala Met Lys Arg Arg
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Glu Lys Lys Ala Gln Lys Glu Lys Asp Lys Met Thr Thr Ser Pro Ser
Page 25

20

25

30

Ser Gln His Gly Gly Asn Gly Ser Leu Ala Ser Gly Gly Gly Gln Asp
 35 40 45

Phe Val Lys Lys Glu Ile Leu Asp Leu Met Thr Cys Glu Pro Pro Gln
 50 55 60

His Ala Thr Ile Pro Leu Leu Pro Asp Glu Ile Leu Ala Lys Cys Gln
 65 70 75 80

Ala Arg Asn Ile Pro Ser Leu Thr Tyr Asn Gln Leu Ala Val Ile Tyr
 85 90 95

Lys Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp
 100 105 110

Leu Arg Arg Ile Met Ser Gln Pro Asp Glu Asn Glu Ser Gln Thr Asp
 115 120 125

Val Ser Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu
 130 135 140

Ile Val Glu Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile Pro Gln
 145 150 155 160

Glu Asp Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met
 165 170 175

Leu Arg Met Ala Arg Arg Tyr Asp His Ser Ser Asp Ser Ile Phe Phe
 180 185 190

Ala Asn Asn Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met
 195 200 205

Ala Asp Asn Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Phe Ser
 210 215 220

Met Lys Val Asp Asn Val Glu Tyr Ala Leu Leu Thr Ala Ile Val Ile
 225 230 235 240

Phe Ser Asp Arg Pro Gly Leu Glu Lys Ala Gln Leu Val Glu Ala Ile
 245 250 255

Gln Ser Tyr Tyr Ile Asp Thr Leu Arg Ile Tyr Ile Leu Asn Arg His
 260 265 270

Cys Gly Asp Ser Met Ser Leu Val Phe Tyr Ala Lys Leu Leu Ser Ile
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280

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Leu Thr Glu Leu Arg Thr Leu Gly Asn Gln Asn Ala Glu Met Cys Phe
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 35 40 45
 Gln Arg Asn Arg Cys Gln Tyr Cys Arg Tyr Gln Lys Cys Leu Ala Met
 50 55 60

Gly Met Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly Lys Asp
 65 70 75 80
 Arg Asn Glu Asn Glu Val Glu Ser Thr Ser Ser Ala Asn Glu Asp Met
 85 90 95
 Pro Val Glu Lys Ile Leu Glu Ala Glu Leu Ala Val Glu Pro Lys Thr
 100 105 110
 Glu Thr Tyr Val Glu Ala Asn Met Gly Leu Asn Pro Ser Ser Pro Asn
 115 120 125
 Asp Pro Val Thr Asn Ile Cys Gln Ala Ala Asp Lys Gln Leu Phe Thr
 130 135 140
 Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe Ser Glu Leu Pro Leu
 145 150 155 160
 Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp Asn Glu Leu Leu Ile
 165 170 175
 Ala Ser Phe Ser His Arg Ser Ile Ala Val Lys Asp Gly Ile Leu Leu
 180 185 190
 Ala Thr Gly Leu His Val His Arg Asn Ser Ala His Ser Ala Gly Val
 195 200 205
 Gly Ala Ile Phe Asp Arg Val Leu Thr Glu Leu Val Ser Lys Met Arg
 210 215 220
 Asp Met Gln Met Asp Lys Thr Glu Leu Gly Cys Leu Arg Ala Ile Val
 225 230 235 240
 Leu Phe Asn Pro Asp Ser Lys Gly Leu Ser Asn Pro Ala Glu Val Glu
 245 250 255
 Ala Leu Arg Glu Lys Val Tyr Ala Ser Leu Glu Ala Tyr Cys Lys His
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 Lys Tyr Pro Glu Gln Pro Gly Arg Phe Ala Lys Leu Leu Leu Arg Leu
 275 280 285
 Pro Ala Leu Arg Ser Ile Gly Leu Lys Cys Leu Glu His Leu Phe Phe
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<400> 32

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35 40 45

Tyr Val Glu Ala Asn Met Gly Leu Asn Pro Ser Ser Pro Asn Asp Pro
50 55 60

Val Thr Asn Ile Cys Gln Ala Ala Asp Lys Gln Leu Phe Thr Leu Val
65 70 75 80

Glu Trp Ala Lys Arg Ile Pro His Phe Ser Glu Leu Pro Leu Asp Asp
85 90 95

Gln Val Ile Leu Leu Arg Ala Gly Trp Asn Glu Leu Leu Ile Ala Ser
100 105 110

Phe Ser His Arg Ser Ile Ala Val Lys Asp Gly Ile Leu Leu Ala Thr
115 120 125

Gly Leu His Val His Arg Asn Ser Ala His Ser Ala Gly Val Gly Ala
130 135 140

Ile Phe Asp Arg Val Leu Thr Glu Leu Val Ser Lys Met Arg Asp Met
145 150 155 160

Gln Met Asp Lys Thr Glu Leu Gly Cys Leu Arg Ala Ile Val Leu Phe
165 170 175

Asn Pro Asp Ser Lys Gly Leu Ser Asn Pro Ala Glu Val Glu Ala Leu
180 185 190

Arg Glu Lys Val Tyr Ala Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr
195 200 205

Pro Glu Gln Pro Gly Arg Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala
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220

Leu Arg Ser Ile Gly Leu Lys Cys Leu Glu His Leu Phe Phe Phe Lys
 225 230 235 240

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Ala Pro His Gln Ala Thr
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<400> 33

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 35 40 45

Lys Gln Leu Phe Thr Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe
 50 55 60

Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp
 65 70 75 80

Asn Glu Leu Leu Ile Ala Ser Phe Ser His Arg Ser Ile Ala Val Lys
 85 90 95

Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His Arg Asn Ser Ala
 100 105 110

His Ser Ala Gly Val Gly Ala Ile Phe Asp Arg Val Leu Thr Glu Leu
 115 120 125

Val Ser Lys Met Arg Asp Met Gln Met Asp Lys Thr Glu Leu Gly Cys
 130 135 140

Leu Arg Ala Ile Val Leu Phe Asn Pro Asp Ser Lys Gly Leu Ser Asn
 145 150 155 160

Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr Ala Ser Leu Glu
 165 170 175

Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly Arg Phe Ala Lys
180 185 190

Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly Leu Lys Cys Leu
195 200 205

Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr Pro Ile Asp Thr
210 215 220

Phe Leu Met Glu Met Leu Glu Ala Pro His Gln Ala Thr
225 230 235

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<400> 34

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Ile Ala Val Lys Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His
35 40 45

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50 55 60

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85 90 95

Gly Leu Ser Asn Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr
100 105 110

Ala Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly
115 120 125

Arg Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly
130 135 140

Leu Lys Cys Leu Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr
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Thr

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<400> 35

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Pro Ser Ser Pro Asn Asp Pro Val Thr Asn Ile Cys Gln Ala Ala Asp
35 40 45

Lys Gln Leu Phe Thr Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe
50 55 60

Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp
65 70 75 80

Asn Glu Leu Leu Ile Ala Ser Phe Ser His Arg Ser Ile Ala Val Lys
85 90 95

Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His Arg Asn Ser Ala
100 105 110

His Ser Ala Gly Val Gly Ala Ile Phe Asp Arg Val Leu Thr Glu Leu
115 120 125

Val Ser Lys Met Arg Asp Met Gln Met Asp Lys Thr Glu Leu Gly Cys
130 135 140

Leu Arg Ala Ile Val Leu Phe Asn Pro Asp Ser Lys Gly Leu Ser Asn
145 150 155 160

Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr Ala Ser Leu Glu
165 170 175

Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly Arg Phe Ala Lys
180 185 190

Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly Leu Lys Cys Leu
195 200 205

Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr Pro Ile Asp Thr
210 215 220

<210> 36
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<213> Homo sapiens

<400> 36

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Gly Met Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly Lys Asp
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Arg Asn Glu Asn Glu Val Glu Ser Thr Ser Ser Ala Asn Glu Asp Met
85 90 95

Pro Val Glu Arg Ile Leu Glu Ala Glu Leu Ala Val Glu Pro Lys Thr
100 105 110

Glu Thr Tyr Val Glu Ala Asn Met Gly Leu Asn Pro Ser Ser Pro Asn
115 120 125

Asp Pro Val Thr Asn Ile Cys Gln Ala Ala Asp Lys Gln Leu Phe Thr
130 135 140

Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe Ser Glu Leu Pro Leu
145 150 155 160

Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp Asn Glu Leu Leu Ile
165 170 175

Ala Ser Phe Ser His Arg Ser Ile Ala Val Lys Asp Gly Ile Leu Leu
180 185 190

Ala Thr Gly Leu His Val His Arg Asn Ser Ala His Ser Ala Gly Val
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200

205

Gly Ala Ile Phe Asp Arg Val Leu Thr Glu Leu Val Ser Lys Met Arg
 210 215 220

Asp Met Gln Met Asp Lys Thr Glu Leu Gly Cys Leu Arg Ala Ile Val
 225 230 235 240

Leu Phe Asn Pro Asp Ser Lys Gly Leu Ser Asn Pro Ala Glu Val Glu
 245 250 255

Ala Leu Arg Glu Lys Val Tyr Ala Ser Leu Glu Ala Tyr Cys Lys His
 260 265 270

Lys Tyr Pro Glu Gln Pro Gly Arg Phe Ala Lys Leu Leu Leu Arg Leu
 275 280 285

Pro Ala Leu Arg Ser Ile Gly Leu Lys Cys Leu Glu His Leu Phe Phe
 290 295 300

Phe Lys Leu Ile Gly Asp Thr Pro Ile Asp Thr Phe Leu Met Glu Met
 305 310 315 320

Leu Glu Ala Pro His Gln Met Thr
 325

<210> 37
 <211> 262
 <212> PRT
 <213> Homo sapiens

<400> 37

Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly Lys Asp Arg Asn
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Glu Asn Glu Val Glu Ser Thr Ser Ser Ala Asn Glu Asp Met Pro Val
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Glu Arg Ile Leu Glu Ala Glu Leu Ala Val Glu Pro Lys Thr Glu Thr
 35 40 45

Tyr Val Glu Ala Asn Met Gly Leu Asn Pro Ser Ser Pro Asn Asp Pro
 50 55 60

Val Thr Asn Ile Cys Gln Ala Ala Asp Lys Gln Leu Phe Thr Leu Val
 65 70 75 80

Glu Trp Ala Lys Arg Ile Pro His Phe Ser Glu Leu Pro Leu Asp Asp
 85 90 95

Gln Val Ile Leu Leu Arg Ala Gly Trp Asn Glu Leu Leu Ile Ala Ser
100 105 110

Phe Ser His Arg Ser Ile Ala Val Lys Asp Gly Ile Leu Leu Ala Thr
115 120 125

Gly Leu His Val His Arg Asn Ser Ala His Ser Ala Gly Val Gly Ala
130 135 140

Ile Phe Asp Arg Val Leu Thr Glu Leu Val Ser Lys Met Arg Asp Met
145 150 155 160

Gln Met Asp Lys Thr Glu Leu Gly Cys Leu Arg Ala Ile Val Leu Phe
165 170 175

Asn Pro Asp Ser Lys Gly Leu Ser Asn Pro Ala Glu Val Glu Ala Leu
180 185 190

Arg Glu Lys Val Tyr Ala Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr
195 200 205

Pro Glu Gln Pro Gly Arg Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala
210 215 220

Leu Arg Ser Ile Gly Leu Lys Cys Leu Glu His Leu Phe Phe Phe Lys
225 230 235 240

Leu Ile Gly Asp Thr Pro Ile Asp Thr Phe Leu Met Glu Met Leu Glu
245 250 255

Ala Pro His Gln Met Thr
260

<210> 38
<211> 237
<212> PRT
<213> Homo sapiens

<400> 38

Ala Asn Glu Asp Met Pro Val Glu Arg Ile Leu Glu Ala Glu Leu Ala
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Val Glu Pro Lys Thr Glu Thr Tyr Val Glu Ala Asn Met Gly Leu Asn
20 25 30

Pro Ser Ser Pro Asn Asp Pro Val Thr Asn Ile Cys Gln Ala Ala Asp
35 40 45

Lys Gln Leu Phe Thr Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe
50 55 60

Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp
65 70 75 80

Asn Glu Leu Leu Ile Ala Ser Phe Ser His Arg Ser Ile Ala Val Lys
85 90 95

Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His Arg Asn Ser Ala
100 105 110

His Ser Ala Gly Val Gly Ala Ile Phe Asp Arg Val Leu Thr Glu Leu
115 120 125

Val Ser Lys Met Arg Asp Met Gln Met Asp Lys Thr Glu Leu Gly Cys
130 135 140

Leu Arg Ala Ile Val Leu Phe Asn Pro Asp Ser Lys Gly Leu Ser Asn
145 150 155 160

Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr Ala Ser Leu Glu
165 170 175

Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly Arg Phe Ala Lys
180 185 190

Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly Leu Lys Cys Leu
195 200 205

Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr Pro Ile Asp Thr
210 215 220

Phe Leu Met Glu Met Leu Glu Ala Pro His Gln Met Thr
225 230 235

<210> 39
<211> 177
<212> PRT
<213> Homo sapiens

<400> 39

Ile Pro His Phe Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu
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Arg Ala Gly Trp Asn Glu Leu Leu Ile Ala Ser Phe Ser His Arg Ser
20 25 30

Ile Ala Val Lys Asp Gly Ile Leu Leu Ala Thr Gly Leu His Val His
35 40 45

Arg Asn Ser Ala His Ser Ala Gly Val Gly Ala Ile Phe Asp Arg Val
50 55 60

Leu Thr Glu Leu Val Ser Lys Met Arg Asp Met Gln Met Asp Lys Thr
65 70 75 80

Glu Leu Gly Cys Leu Arg Ala Ile Val Leu Phe Asn Pro Asp Ser Lys
85 90 95

Gly Leu Ser Asn Pro Ala Glu Val Glu Ala Leu Arg Glu Lys Val Tyr
100 105 110

Ala Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln Pro Gly
115 120 125

Arg Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Gly
130 135 140

Leu Lys Cys Leu Glu His Leu Phe Phe Phe Lys Leu Ile Gly Asp Thr
145 150 155 160

Pro Ile Asp Thr Phe Leu Met Glu Met Leu Glu Ala Pro His Gln Met
165 170 175

Thr

<210> 40
<211> 224
<212> PRT
<213> Homo sapiens

<400> 40

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Val Glu Pro Lys Thr Glu Thr Tyr Val Glu Ala Asn Met Gly Leu Asn
20 25 30

Pro Ser Ser Pro Asn Asp Pro Val Thr Asn Ile Cys Gln Ala Ala Asp
35 40 45

Lys Gln Leu Phe Thr Leu Val Glu Trp Ala Lys Arg Ile Pro His Phe
50 55 60

Ser Glu Leu Pro Leu Asp Asp Gln Val Ile Leu Leu Arg Ala Gly Trp
Page 42

65		70		75		80									
Asn	Glu	Leu	Leu	Ile	Ala	Ser	Phe	Ser	His	Arg	Ser	Ile	Ala	Val	Lys
				85					90					95	
Asp	Gly	Ile	Leu	Leu	Ala	Thr	Gly	Leu	His	Val	His	Arg	Asn	Ser	Ala
			100					105					110		
His	Ser	Ala	Gly	Val	Gly	Ala	Ile	Phe	Asp	Arg	Val	Leu	Thr	Glu	Leu
		115					120					125			
Val	Ser	Lys	Met	Arg	Asp	Met	Gln	Met	Asp	Lys	Thr	Glu	Leu	Gly	Cys
	130					135					140				
Leu	Arg	Ala	Ile	Val	Leu	Phe	Asn	Pro	Asp	Ser	Lys	Gly	Leu	Ser	Asn
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Pro	Ala	Glu	Val	Glu	Ala	Leu	Arg	Glu	Lys	Val	Tyr	Ala	Ser	Leu	Glu
				165					170					175	
Ala	Tyr	Cys	Lys	His	Lys	Tyr	Pro	Glu	Gln	Pro	Gly	Arg	Phe	Ala	Lys
			180					185					190		
Leu	Leu	Leu	Arg	Leu	Pro	Ala	Leu	Arg	Ser	Ile	Gly	Leu	Lys	Cys	Leu
		195					200					205			
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 <212> DNA
 <213> Choristoneura fumiferana

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cacgcttgcg aaatggacat gtacatgcga cggaaatgcc aggagtgccg cctgaagaag	180
tgcttagctg taggcatg	198

<210> 42
 <211> 66
 <212> PRT
 <213> Choristoneura fumiferana

<400> 42
Cys Leu Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu
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Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn
 20 25 30

Ala Val Tyr Ile Cys Lys Phe Gly His Ala Cys Glu Met Asp Met Tyr
 35 40 45

Met Arg Arg Lys Cys Gln Gly Cys Arg Leu Lys Lys Cys Leu Ala Val
 50 55 60

Gly Met
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<210> 43
 <211> 441
 <212> DNA
 <213> *Saccharomyces cerevisiae*

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 aatgtgaata aagatgccgt cacagataga ttggcttcag tggagactga tatgcctcta 360
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 caaagacagt tgactgtatc g 441

<210> 44
 <211> 147
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 44

Met Lys Leu Leu Ser Ser Ile Glu Gln Ala Cys Asp Ile Cys Arg Leu
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Lys Lys Leu Lys Cys Ser Lys Glu Lys Pro Lys Cys Ala Lys Cys Leu
 20 25 30

Lys Asn Asn Trp Glu Cys Arg Tyr Ser Pro Lys Thr Lys Arg Ser Pro
 35 40 45

Leu Thr Arg Ala His Leu Thr Glu Val Glu Ser Arg Leu Glu Arg Leu
 50 55 60

Glu Gln Leu Phe Leu Leu Ile Phe Pro Arg Glu Asp Leu Asp Met Ile
 Page 44

65

70

75

80

Leu

Lys

Met

Asp

Ser

Leu

Gln

Asp

Ile

Lys

Ala

Leu

Leu

Thr

Gly

Leu

85

90

95

Phe

Val

Gln

Asp

Asn

Val

Asn

Lys

Asp

Ala

Val

Thr

Asp

Arg

Leu

Ala

100

105

110

Ser

Val

Glu

Thr

Asp

Met

Pro

Leu

Thr

Leu

Arg

Gln

His

Arg

Ile

Ser

115

120

125

Ala

Thr

Ser

Ser

Ser

Glu

Glu

Ser

Ser

Asn

Lys

Gly

Gln

Arg

Gln

Leu

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135

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Thr

Val

Ser

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<211>

606

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DNA

<213>

Escherichia coli

<400>

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cagacaggta tgccgccgac gcgtgcgga atcgcgcagc gtttggggtt ccgttcccca

120

aacgcggctg aagaacatct gaaggcgctg gcacgcaaag gcgttattga aattgtttcc

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ggcgcatcac gcgggattcg tctgttgag gaagaggaag aagggttgcc gctggtaggt

240

cgtgtggctg ccggtgaacc acttctggcg caacagcata ttgaagggtca ttatcagggtc

300

gataccttcct tattcaagcc gaatgctgat ttctgtctgc gcgtcagcgg gatgtcgatg

360

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420

aacggtcagg tcgttgctgc acgtattgat gacgaagtta ccgttaagcg cctgaaaaaa

480

cagggcaata aagtcgaact gttgccagaa aatagcgagt ttaaaccaat tgtcgtagat

540

cttcgtcagc agagcttcac cattgaaggg ctggcggttg gggttattcg caacggcgac

600

tggtctg

606

<210>

46

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202

<212>

PRT

<213>

Escherichia coli

<400>

46

Met

Lys

Ala

Leu

Thr

Ala

Arg

Gln

Gln

Glu

Val

Phe

Asp

Leu

Ile

Arg

1

5

10

15

Asp

His

Ile

Ser

Gln

Thr

Gly

Met

Pro

Pro

Thr

Arg

Ala

Glu

Ile

Ala

Page

45

20 25 30
 Gln Arg Leu Gly Phe Arg Ser Pro Asn Ala Ala Glu Glu His Leu Lys
 35 40 45
 Ala Leu Ala Arg Lys Gly Val Ile Glu Ile Val Ser Gly Ala Ser Arg
 50 55 60
 Gly Ile Arg Leu Leu Gln Glu Glu Glu Glu Gly Leu Pro Leu Val Gly
 65 70 75 80
 Arg Val Ala Ala Gly Glu Pro Leu Leu Ala Gln Gln His Ile Glu Gly
 85 90 95
 His Tyr Gln Val Asp Pro Ser Leu Phe Lys Pro Asn Ala Asp Phe Leu
 100 105 110
 Leu Arg Val Ser Gly Met Ser Met Lys Asp Ile Gly Ile Met Asp Gly
 115 120 125
 Asp Leu Leu Ala Val His Lys Thr Gln Asp Val Arg Asn Gly Gln Val
 130 135 140
 Val Val Ala Arg Ile Asp Asp Glu Val Thr Val Lys Arg Leu Lys Lys
 145 150 155 160
 Gln Gly Asn Lys Val Glu Leu Leu Pro Glu Asn Ser Glu Phe Lys Pro
 165 170 175
 Ile Val Val Asp Leu Arg Gln Gln Ser Phe Thr Ile Glu Gly Leu Ala
 180 185 190
 Val Gly Val Ile Arg Asn Gly Asp Trp Leu
 195 200

<210> 47
 <211> 420
 <212> DNA
 <213> Choristoneura fumiferana

<400> 47
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 gagtcgctcg cctcgccaga gtacggcggg ctcgagctct ggggatacga cgatgggttg 180
 tcatacaaca cggcgcagtc cttgctgggc aatacttgca cgatgcagca gcagcaacag 240
 acgcagccgc tgccgtcgat gccgttgctt atgccgccga ccacgccgaa gtctgaaaac 300
 gagtctatatt cctcaggccg tgaggaactg tcgccagctt caagtataaa tgggtgcagt 360

acagatggcg aggcacgacg tcagaagaag ggcctgcgc cccgtcagca agaggaactg 420

<210> 48
 <211> 140
 <212> PRT
 <213> Choristoneura fumiferana

<400> 48

Met Arg Arg Arg Trp Ser Asn Asn Gly Gly Phe Gln Thr Leu Arg Met
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Leu Glu Glu Ser Ser Ser Glu Val Thr Ser Ser Ser Ala Leu Gly Leu
 20 25 30

Pro Ala Ala Met Val Met Ser Pro Glu Ser Leu Ala Ser Pro Glu Tyr
 35 40 45

Gly Gly Leu Glu Leu Trp Gly Tyr Asp Asp Gly Leu Ser Tyr Asn Thr
 50 55 60

Ala Gln Ser Leu Leu Gly Asn Thr Cys Thr Met Gln Gln Gln Gln Gln
 65 70 75 80

Thr Gln Pro Leu Pro Ser Met Pro Leu Pro Met Pro Pro Thr Thr Pro
 85 90 95

Lys Ser Glu Asn Glu Ser Ile Ser Ser Gly Arg Glu Glu Leu Ser Pro
 100 105 110

Ala Ser Ser Ile Asn Gly Cys Ser Thr Asp Gly Glu Ala Arg Arg Gln
 115 120 125

Lys Lys Gly Pro Ala Pro Arg Gln Gln Glu Glu Leu
 130 135 140

<210> 49
 <211> 271
 <212> DNA
 <213> herpes simplex virus 7

<400> 49

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ctccacttag acggcgagga cgtggcgatg gcgcatgccg acgcgctaga cgatttcgat 120

ctggacatgt tgggggacgg ggattccccg gggccgggat ttacccccca cgactccgcc 180

ccctacggcg ctctggatat ggccgacttc gagtttgagc agatgtttac cgatgccctt 240

ggaattgacg agtacggtgg ggaattccccg g 271

<210> 50
 <211> 90
 <212> PRT
 <213> herpes simplex virus 7

<400> 50

Met Gly Pro Lys Lys Lys Arg Lys Val Ala Pro Pro Thr Asp Val Ser
 1 5 10 15

Leu Gly Asp Glu Leu His Leu Asp Gly Glu Asp Val Ala Met Ala His
 20 25 30

Ala Asp Ala Leu Asp Asp Phe Asp Leu Asp Met Leu Gly Asp Gly Asp
 35 40 45

Ser Pro Gly Pro Gly Phe Thr Pro His Asp Ser Ala Pro Tyr Gly Ala
 50 55 60

Leu Asp Met Ala Asp Phe Glu Phe Glu Gln Met Phe Thr Asp Ala Leu
 65 70 75 80

Gly Ile Asp Glu Tyr Gly Gly Glu Phe Pro
 85 90

<210> 51
 <211> 307
 <212> DNA
 <213> Saccharomyces cerevisiae

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 gccgggcccgc cgatccagcc tgactggctg aaatcgaatg gttttcatga aattgaagcg 240
 gatgttaacg ataccagcct cttgctgagt ggagatgcct cctaccctta tgatgtgccca 300
 gattatg 307

<210> 52
 <211> 102
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 52

Met Gly Ala Pro Pro Lys Lys Lys Arg Lys Val Ala Gly Ile Asn Lys
 1 5 10 15

Asp Ile Glu Glu Cys Asn Ala Ile Ile Glu Gln Phe Ile Asp Tyr Leu
 20 25 30

Arg Thr Gly Gln Glu Met Pro Met Glu Met Ala Asp Gln Ala Ile Asn
 35 40 45

Val Val Pro Gly Met Thr Pro Lys Thr Ile Leu His Ala Gly Pro Pro
 50 55 60

Ile Gln Pro Asp Trp Leu Lys Ser Asn Gly Phe His Glu Ile Glu Ala
 65 70 75 80

Asp Val Asn Asp Thr Ser Leu Leu Leu Ser Gly Asp Ala Ser Tyr Pro
 85 90 95

Tyr Asp Val Pro Asp Tyr
 100

<210> 53
 <211> 807
 <212> DNA
 <213> Homo sapiens

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 gacccccggc ctccacctcg acgcattgct gtgccttccc gcagctcagc ttctgtcccc 180
 aagccagcac cccagcccta tccctttacg tcatccctga gcaccatcaa ctatgatgag 240
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 tcagccctgc tgagtcagat cagctcc 807

<210> 54
 <211> 269
 <212> PRT
 <213> Homo sapiens

<400> 54

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Glu	Glu	Lys	Arg	Lys	Arg	Thr	Tyr	Glu	Thr	Phe	Lys	Ser	Ile	Met	Lys				
			20					25					30						
Lys	Ser	Pro	Phe	Ser	Gly	Pro	Thr	Asp	Pro	Arg	Pro	Pro	Pro	Arg	Arg				
		35					40					45							
Ile	Ala	Val	Pro	Ser	Arg	Ser	Ser	Ala	Ser	Val	Pro	Lys	Pro	Ala	Pro				
	50					55					60								
Gln	Pro	Tyr	Pro	Phe	Thr	Ser	Ser	Leu	Ser	Thr	Ile	Asn	Tyr	Asp	Glu				
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Phe	Pro	Thr	Met	Val	Phe	Pro	Ser	Gly	Gln	Ile	Ser	Gln	Ala	Ser	Ala				
				85					90					95					
Leu	Ala	Pro	Ala	Pro	Pro	Gln	Val	Leu	Pro	Gln	Ala	Pro	Ala	Pro	Ala				
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Pro	Ala	Pro	Ala	Met	Val	Ser	Ala	Leu	Ala	Gln	Ala	Pro	Ala	Pro	Val				
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Pro	Val	Leu	Ala	Pro	Gly	Pro	Pro	Gln	Ala	Val	Ala	Pro	Pro	Ala	Pro				
	130					135					140								
Lys	Pro	Thr	Gln	Ala	Gly	Glu	Gly	Thr	Leu	Ser	Glu	Ala	Leu	Leu	Gln				
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Asp	Pro	Ala	Val	Phe	Thr	Asp	Leu	Ala	Ser	Val	Asp	Asn	Ser	Glu	Phe				
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Gln	Gln	Leu	Leu	Asn	Gln	Gly	Ile	Pro	Val	Ala	Pro	His	Thr	Thr	Glu				
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Pro	Met	Leu	Met	Glu	Tyr	Pro	Glu	Ala	Ile	Thr	Arg	Leu	Val	Thr	Gly				
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Ala	Gln	Arg	Pro	Pro	Asp	Pro	Ala	Pro	Ala	Pro	Leu	Gly	Ala	Pro	Gly				
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260

265

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 <211> 225
 <212> DNA
 <213> *Drosophila melanogaster*

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 gagagacaag ggggttcaat gcacttgtcc aatgtcgact ctaga 225

<210> 56
 <211> 19
 <212> DNA
 <213> *Saccharomyces cerevisiae*

<400> 56
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<210> 57
 <211> 666
 <212> DNA
 <213> *Escherichia coli*

<400> 57
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 tagaagtact ttcactttgt aactgagctg tcattttatat tgaattttca aaaattctta 180
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 atacatatcc atatacatat ccatatctaa tcttacctcg actgctgtat ataaaaccag 300
 tggttatatg tacagtactg ctgtatataa aaccagtggg tatatgtaca gtacgtcgac 360
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<210> 58
 <211> 1542
 <212> DNA
 <213> *Choristoneura fumiferana*

<400> 58

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<210> 59
 <211> 513
 <212> PRT
 <213> Choristoneura fumiferana

<400> 59

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 20 25 30
 Arg Asp Trp Met Ala Gly Gly Ala Gly Ala Asn Ser Pro Ser Pro Gly
 35 40 45
 Ala Val Ala Gln Pro Gln Pro Asn Asn Gly Tyr Ser Ser Pro Leu Ser
 50 55 60
 Ser Gly Ser Tyr Gly Pro Tyr Ser Pro Asn Gly Lys Ile Gly Arg Glu
 65 70 75 80
 Glu Leu Ser Pro Ala Ser Ser Ile Asn Gly Cys Ser Thr Asp Gly Glu
 85 90 95
 Ala Arg Arg Gln Lys Lys Gly Pro Ala Pro Arg Gln Gln Glu Glu Leu
 100 105 110
 Cys Leu Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu
 115 120 125
 Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn
 130 135 140
 Ala Val Tyr Ile Cys Lys Phe Gly His Ala Cys Glu Met Asp Met Tyr
 145 150 155 160
 Met Arg Arg Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val
 165 170 175
 Gly Met Arg Pro Glu Cys Val Val Pro Glu Thr Gln Cys Ala Met Lys
 180 185 190
 Arg Lys Glu Lys Lys Ala Gln Lys Glu Lys Asp Lys Leu Pro Val Ser
 195 200 205
 Thr Thr Thr Val Asp Asp His Met Pro Pro Ile Met Gln Cys Glu Pro
 210 215 220
 Pro Pro Pro Glu Ala Ala Arg Ile His Glu Val Val Pro Arg Phe Leu
 225 230 235 240
 Ser Asp Lys Leu Leu Glu Thr Asn Arg Gln Lys Asn Ile Pro Gln Leu
 245 250 255
 Thr Ala Asn Gln Gln Phe Leu Ile Ala Arg Leu Ile Trp Tyr Gln Asp
 260 265 270

Gly Tyr Glu Gln Pro Ser Asp Glu Asp Leu Lys Arg Ile Thr Gln Thr
275 280 285

Trp Gln Gln Ala Asp Asp Glu Asn Glu Glu Ser Asp Thr Pro Phe Arg
290 295 300

Gln Ile Thr Glu Met Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe
305 310 315 320

Ala Lys Gly Leu Pro Gly Phe Ala Lys Ile Ser Gln Pro Asp Gln Ile
325 330 335

Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Val Ala
340 345 350

Arg Arg Tyr Asp Ala Ala Ser Asp Ser Val Leu Phe Ala Asn Asn Gln
355 360 365

Ala Tyr Thr Arg Asp Asn Tyr Arg Lys Ala Gly Met Ala Tyr Val Ile
370 375 380

Glu Asp Leu Leu His Phe Cys Arg Cys Met Tyr Ser Met Ala Leu Asp
385 390 395 400

Asn Ile His Tyr Ala Leu Leu Thr Ala Val Val Ile Phe Ser Asp Arg
405 410 415

Pro Gly Leu Glu Gln Pro Gln Leu Val Glu Glu Ile Gln Arg Tyr Tyr
420 425 430

Leu Asn Thr Leu Arg Ile Tyr Ile Leu Asn Gln Leu Ser Gly Ser Ala
435 440 445

Arg Ser Ser Val Ile Tyr Gly Lys Ile Leu Ser Ile Leu Ser Glu Leu
450 455 460

Arg Thr Leu Gly Met Gln Asn Ser Asn Met Cys Ile Ser Leu Lys Leu
465 470 475 480

Lys Asn Arg Lys Leu Pro Pro Phe Leu Glu Glu Ile Trp Asp Val Ala
485 490 495

Asp Met Ser His Thr Gln Pro Pro Pro Ile Leu Glu Ser Pro Thr Asn
500 505 510

Leu

<210> 60
 <211> 4375
 <212> DNA
 <213> *Choristoneura fumiferana*

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<210> 61
<211> 472
<212> PRT
<213> Choristoneura fumiferana

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<400> 61
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Leu Ile Asn Trp Ala Arg Pro Ala Pro Pro Gly Pro Pro Gln Pro Gln
          20          25          30

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Ser Ala Ser Pro Ala Pro Ala Ala Met Leu Gln Gln Leu Pro Thr Gln
          35          40          45

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Ser Met Gln Ser Leu Asn His Ile Pro Thr Val Asp Cys Ser Leu Asp
          50          55          60

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Met Gln Trp Leu Asn Leu Glu Pro Gly Phe Met Ser Pro Met Ser Pro
          65          70          75          80

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Pro Glu Met Lys Pro Asp Thr Ala Met Leu Asp Gly Leu Arg Asp Asp
          85          90          95

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Ala Thr Ser Pro Pro Asn Phe Lys Asn Tyr Pro Pro Asn His Pro Leu
          100          105          110

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Ser Gly Ser Lys His Leu Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly
          115          120          125

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Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys
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 Arg Thr Val Arg Lys Asp Leu Ser Tyr Ala Cys Arg Glu Glu Arg Asn
 145 150 155 160
 Cys Ile Ile Asp Lys Arg Gln Arg Asn Arg Cys Gln Tyr Cys Arg Tyr
 165 170 175
 Gln Lys Cys Leu Ala Cys Gly Met Lys Arg Glu Ala Val Gln Glu Glu
 180 185 190
 Arg Gln Arg Asn Ala Arg Gly Ala Glu Asp Ala His Pro Ser Ser Ser
 195 200 205
 Val Gln Val Ser Asp Glu Leu Ser Ile Glu Arg Leu Thr Glu Met Glu
 210 215 220
 Ser Leu Val Ala Asp Pro Ser Glu Glu Phe Gln Phe Leu Arg Val Gly
 225 230 235 240
 Pro Asp Ser Asn Val Pro Pro Arg Tyr Arg Ala Pro Val Ser Ser Leu
 245 250 255
 Cys Gln Ile Gly Asn Lys Gln Ile Ala Ala Leu Val Val Trp Ala Arg
 260 265 270
 Asp Ile Pro His Phe Gly Gln Leu Glu Leu Asp Asp Gln Val Val Leu
 275 280 285
 Ile Lys Ala Ser Trp Asn Glu Leu Leu Leu Phe Ala Ile Ala Trp Arg
 290 295 300
 Ser Met Glu Tyr Leu Glu Asp Glu Arg Glu Asn Gly Asp Gly Thr Arg
 305 310 315 320
 Ser Thr Thr Gln Pro Gln Leu Met Cys Leu Met Pro Gly Met Thr Leu
 325 330 335
 His Arg Asn Ser Ala Gln Gln Ala Gly Val Gly Ala Ile Phe Asp Arg
 340 345 350
 Val Leu Ser Glu Leu Ser Leu Lys Met Arg Thr Leu Arg Met Asp Gln
 355 360 365
 Ala Glu Tyr Val Ala Leu Lys Ala Ile Val Leu Leu Asn Pro Asp Val
 370 375 380

Lys Gly Leu Lys Asn Arg Gln Glu Val Asp Val Leu Arg Glu Lys Met
 385 390 395 400

Phe Ser Cys Leu Asp Asp Tyr Cys Arg Arg Ser Arg Ser Asn Glu Glu
 405 410 415

Gly Arg Phe Ala Ser Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile
 420 425 430

Ser Leu Lys Ser Phe Glu His Leu Tyr Phe Phe His Leu Val Ala Glu
 435 440 445

Gly Ser Ile Ser Gly Tyr Ile Arg Glu Ala Leu Arg Asn His Ala Pro
 450 455 460

Pro Ile Asp Val Asn Ala Met Met
 465 470

<210> 62
 <211> 1404
 <212> DNA
 <213> Mus musculus

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 aagggttct tcaagaggac agtacgaaa gacctgacct acacctgccg agacaacaag 540
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 ctggaagccg agcttgctgt cgagcccaag actgagacat acgtggaggc aaacatgggg 780
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<210> 63
 <211> 467
 <212> PRT
 <213> Mus musculus

<400> 63

Met Asp Thr Lys His Phe Leu Pro Leu Asp Phe Ser Thr Gln Val Asn
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Ser Ser Ser Leu Asn Ser Pro Thr Gly Arg Gly Ser Met Ala Val Pro
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Ser Leu His Pro Ser Leu Gly Pro Gly Ile Gly Ser Pro Leu Gly Ser
35 40 45

Pro Gly Gln Leu His Ser Pro Ile Ser Thr Leu Ser Ser Pro Ile Asn
50 55 60

Gly Met Gly Pro Pro Phe Ser Val Ile Ser Ser Pro Met Gly Pro His
65 70 75 80

Ser Met Ser Val Pro Thr Thr Pro Thr Leu Gly Phe Gly Thr Gly Ser
85 90 95

Pro Gln Leu Asn Ser Pro Met Asn Pro Val Ser Ser Thr Glu Asp Ile
100 105 110

Lys Pro Pro Leu Gly Leu Asn Gly Val Leu Lys Val Pro Ala His Pro
115 120 125

Ser Gly Asn Met Ala Ser Phe Thr Lys His Ile Cys Ala Ile Cys Gly
130 135 140

Asp Arg Ser Ser Gly Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys
145 150 155 160

Lys Gly Phe Phe Lys Arg Thr Val Arg Lys Asp Leu Thr Tyr Thr Cys
165 170 175

Arg Asp Asn Lys Asp Cys Leu Ile Asp Lys Arg Gln Arg Asn Arg Cys
180 185 190

Gln Tyr Cys Arg Tyr Gln Lys Cys Leu Ala Met Gly Met Lys Arg Glu
195 200 205

Ala Val Gln Glu Glu Arg Gln Arg Gly Lys Asp Arg Asn Glu Asn Glu
210 215 220

Val Glu Ser Thr Ser Ser Ala Asn Glu Asp Met Pro Val Glu Lys Ile
225 230 235 240

Leu Glu Ala Glu Leu Ala Val Glu Pro Lys Thr Glu Thr Tyr Val Glu
245 250 255

Ala Asn Met Gly Leu Asn Pro Ser Ser Pro Asn Asp Pro Val Thr Asn
260 265 270

Ile Cys Gln Ala Ala Asp Lys Gln Leu Phe Thr Leu Val Glu Trp Ala
275 280 285

Lys Arg Ile Pro His Phe Ser Glu Leu Pro Leu Asp Asp Gln Val Ile
290 295 300

Leu Leu Arg Ala Gly Trp Asn Glu Leu Leu Ile Ala Ser Phe Ser His
305 310 315 320

Arg Ser Ile Ala Val Lys Asp Gly Ile Leu Leu Ala Thr Gly Leu His
325 330 335

Val His Arg Asn Ser Ala His Ser Ala Gly Val Gly Ala Ile Phe Asp
340 345 350

Arg Val Leu Thr Glu Leu Val Ser Lys Met Arg Asp Met Gln Met Asp
355 360 365

Lys Thr Glu Leu Gly Cys Leu Arg Ala Ile Val Leu Phe Asn Pro Asp
370 375 380

Ser Lys Gly Leu Ser Asn Pro Ala Glu Val Glu Ala Leu Arg Glu Lys
385 390 395 400

Val Tyr Ala Ser Leu Glu Ala Tyr Cys Lys His Lys Tyr Pro Glu Gln
405 410 415

Pro Gly Arg Phe Ala Lys Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser
420 425 430

Ile Gly Leu Lys Cys Leu Glu His Leu Phe Phe Phe Lys Leu Ile Gly
435 440 445

Asp Thr Pro Ile Asp Thr Phe Leu Met Glu Met Leu Glu Ala Pro His
450 455 460

Gln Ala Thr
465

<210> 64
<211> 309
<212> DNA
<213> Simian virus 40

<400> 64
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gcctaggct 309

<210> 65
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Synthetic E1B minimal promoter

<400> 65
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<210> 66
<211> 1653
<212> DNA
<213> Photinus pyralis

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<210> 67
 <211> 867
 <212> DNA
 <213> *Choristoneura fumiferana*

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caagtggtag tcatcaaggc ctcttggaat gagctgctac tcttcgccat cgcctggcgc	360
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gacgactact gccggcggtc gcgaagcaac gaggaaggcc ggtttgctgc cttgctgctg	720
cggctgccag ctctccgctc catctcgtc aagagcttcg aacacctcta cttcttccac	780
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<210> 68
 <211> 619
 <212> DNA
 <213> Cytomegalovirus

<400> 68	
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atgggtggag tatttacggt aaactgccc cttggcagta catcaagtgt atcatatgcc	180
aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt atgcccagta	240
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ggaacggtgc attggaacg	619

<210> 69
 <211> 262
 <212> DNA
 <213> Rous sarcoma virus

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cgtgccttat taggaaggca acagacgggt ctgacatgga ttggacgaac cactgaattc	180
cgcattgcag agatattgta ttttaagtgcc tagctcgata caataaacgc catttgacca	240
ttcaccacat tggagtgcac ct	262

<210> 70

<211> 1247
 <212> DNA
 <213> Choristoneura fumiferana

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<210> 71
 <211> 440
 <212> PRT
 <213> Choristoneura fumiferana

<400> 71
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 Gly Cys Ser Thr Asp Gly Glu Ala Arg Arg Gln Lys Lys Gly Pro Ala
 20 25 30

Pro Arg Gln Gln Glu Glu Leu Cys Leu Val Cys Gly Asp Arg Ala Ser
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35

40

45

Gly Tyr His Tyr Asn Ala Leu Thr Cys Glu Gly Cys Lys Gly Phe Phe
 50 55 60

Arg Arg Ser Val Thr Lys Asn Ala Val Tyr Ile Cys Lys Phe Gly His
 65 70 75 80

Ala Cys Glu Met Asp Met Tyr Met Arg Arg Lys Cys Gln Glu Cys Arg
 85 90 95

Leu Lys Lys Cys Leu Ala Val Gly Met Arg Pro Glu Cys Val Val Pro
 100 105 110

Glu Thr Gln Cys Ala Met Lys Arg Lys Glu Lys Lys Ala Gln Lys Glu
 115 120 125

Lys Asp Lys Leu Pro Val Ser Thr Thr Thr Val Asp Asp His Met Pro
 130 135 140

Pro Ile Met Gln Cys Glu Pro Pro Pro Pro Glu Ala Ala Arg Ile His
 145 150 155 160

Glu Val Val Pro Arg Phe Leu Ser Asp Lys Leu Leu Glu Thr Asn Arg
 165 170 175

Gln Lys Asn Ile Pro Gln Leu Thr Ala Asn Gln Gln Phe Leu Ile Ala
 180 185 190

Arg Leu Ile Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Asp Glu Asp
 195 200 205

Leu Lys Arg Ile Thr Gln Thr Trp Gln Gln Ala Asp Asp Glu Asn Glu
 210 215 220

Glu Ser Asp Thr Pro Phe Arg Gln Ile Thr Glu Met Thr Ile Leu Thr
 225 230 235 240

Val Gln Leu Ile Val Glu Phe Ala Lys Gly Leu Pro Gly Phe Ala Lys
 245 250 255

Ile Ser Gln Pro Asp Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu
 260 265 270

Val Met Met Leu Arg Val Ala Arg Arg Tyr Asp Ala Ala Ser Asp Ser
 275 280 285

Val Leu Phe Ala Asn Asn Gln Ala Tyr Thr Arg Asp Asn Tyr Arg Lys
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290

295

300

Ala Gly Met Ala Tyr Val Ile Glu Asp Leu Leu His Phe Cys Arg Cys
305 310 315 320

Met Tyr Ser Met Ala Leu Asp Asn Ile His Tyr Ala Leu Leu Thr Ala
325 330 335

Val Val Ile Phe Ser Asp Arg Pro Gly Leu Glu Gln Pro Gln Leu Val
340 345 350

Glu Glu Ile Gln Arg Tyr Tyr Leu Asn Thr Leu Arg Ile Tyr Ile Leu
355 360 365

Asn Gln Leu Ser Gly Ser Ala Arg Ser Ser Val Ile Tyr Gly Lys Ile
370 375 380

Leu Ser Ile Leu Ser Glu Leu Arg Thr Leu Gly Met Gln Asn Ser Asn
385 390 395 400

Met Cys Ile Ser Leu Lys Leu Lys Asn Arg Lys Leu Pro Pro Phe Leu
405 410 415

Glu Glu Ile Trp Asp Val Ala Asp Met Ser His Thr Gln Pro Pro Pro
420 425 430

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<212> DNA
<213> Renilla

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gcataatcttg aaccattcaa agagaaaggt gaagttcgtc gtccaacatt atcatggcct	660
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<210> 73
 <211> 530
 <212> DNA
 <213> *Saccharomyces cerevisiae*

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ccataggatg ataatgcat tagtttttta gccttatttc tggggtaatt aatcagcgaa	360
gcatgatttt ttgatctatt aacagatata taaatgcaaa aactgcataa ccactttaac	420
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<210> 74
 <211> 3157
 <212> DNA
 <213> *Escherichia coli*

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 <211> 185
 <212> DNA
 <213> Escherichia coli

<400> 75	
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gtcga	185

<210> 76
 <211> 17
 <212> DNA
 <213> Artificial

<220>
 <223> DNA sequence for response element

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> n is a, c, g, or t

<400> 76	
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<210> 77
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<223> n is a, c, g, or t

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13

<210> 78
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15